==
Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Anne Corrigan

Timestamp: [year=2008; month=9; day=15; hr=7; min=20; sec=58; ms=178;]
==

Application No: 10573372   Version No: 1.0

Input Set:

Output Set:

Started: 2008-09-10 18:18:00.484
Finished: 2008-09-10 18:18:01.426
Elapsed: 0 hr(s) 0 min(s) 0 sec(s) 942 ms
Total Warnings: 2
Total Errors: 0
No. of SeqIDs Defined: 4
Actual SeqID Count: 4

Error code   Error Description

W 402   Undefined organism found in <213> in SEQ ID (3)

W 402   Undefined organism found in <213> in SEQ ID (4)

<110>   Dale, James Langham
        Echeverria, Santy Peraza

<120>   BANANA RESISTANCE GENES AND USES THEREOF

<130>   DAVI172.006APC

<140>   10573372
<141>   2008-09-10

<150>   PCT/AU2004/001300
<151>   2004-09-23

<150>   AU 2003/905222
<151>   2003-09-25

<160>   4

<170>   PatentIn version 3.3

<210>   1
<211>   4380
<212>   DNA
<213>   Musa acuminata

<220>
<221>   CDS
<222>   (1)..(4323)

<400>   1
atg tcg acg gcg cta gta atc gga gga tgg ttc gcg caa agc ttc atc   48
Met Ser Thr Ala Leu Val Ile Gly Gly Trp Phe Ala Gln Ser Phe Ile
1   5   10   15

cag acg ttg ctc gac aag gcc agc aac tgc gcg atc caa caa ctc gcg   96
Gln Thr Leu Leu Asp Lys Ala Ser Asn Cys Ala Ile Gln Gln Leu Ala
            20   25   30

cgg cgc cgc ggc ctt cac gat gac ctg agg cgg ctg cgg acg tct ctg   144
Arg Arg Arg Gly Leu His Asp Asp Leu Arg Arg Leu Arg Thr Ser Leu
        35   40   45

ctc cgg atc cat gcc atc ctc gac aag gca gag acg agg tgg aac cat   192
Leu Arg Ile His Ala Ile Leu Asp Lys Ala Glu Thr Arg Trp Asn His
    50   55   60

aaa aac acg agc ttg gtg gag ctg gtg agg cag ctc aag gat gct gcc   240
Lys Asn Thr Ser Leu Val Glu Leu Val Arg Gln Leu Lys Asp Ala Ala
65   70   75   80

tat gac gcc gag gac tta ctg gag gag ttg gag tac caa gcc gcg aag   288
Tyr Asp Ala Glu Asp Leu Leu Glu Glu Leu Glu Tyr Gln Ala Ala Lys
                85   90   95

```
caa aag gtc gag cac cgg gga gac cag ata agc gac ctc ttt tct ttt          336
Gln Lys Val Glu His Arg Gly Asp Gln Ile Ser Asp Leu Phe Ser Phe
            100                 105                 110

tcc ctt agt act gcg agc gag tgg ttg ggt gcc gat ggt gat gat gct          384
Ser Leu Ser Thr Ala Ser Glu Trp Leu Gly Ala Asp Gly Asp Asp Ala
            115                 120                 125

ggg act cga ttg agg gag atc cag ggg aag ctg tgc aac att gct gcc          432
Gly Thr Arg Leu Arg Glu Ile Gln Gly Lys Leu Cys Asn Ile Ala Ala
        130                 135                 140

gat atg atg gat gtc atg cag cta ttg gca ccc gat gat ggg ggg aga          480
Asp Met Met Asp Val Met Gln Leu Leu Ala Pro Asp Asp Gly Gly Arg
145                 150                 155                 160

caa ttc gac tgg aag gtg gtg aga aga gaa acg agc tct ttc ttg acc          528
Gln Phe Asp Trp Lys Val Val Arg Arg Glu Thr Ser Ser Phe Leu Thr
                165                 170                 175

gaa acc gtc gtg ttt ggt cgg gac caa gaa agg gag aaa gta gta gaa          576
Glu Thr Val Val Phe Gly Arg Asp Gln Glu Arg Glu Lys Val Val Glu
                180                 185                 190

ttg ctg ttg gat tca gga tct ggt aac agt agc ttc tct gtc tta ccc          624
Leu Leu Leu Asp Ser Gly Ser Gly Asn Ser Ser Phe Ser Val Leu Pro
        195                 200                 205

ctc gtc gga atc gga ggg gtt ggg aag acg act ctg gct cag ctc gtg          672
Leu Val Gly Ile Gly Gly Val Gly Lys Thr Thr Leu Ala Gln Leu Val
        210                 215                 220

tac aac gac aat cgt gtc ggc aac tat ttc cac ctc aag gtt tgg gtc          720
Tyr Asn Asp Asn Arg Val Gly Asn Tyr Phe His Leu Lys Val Trp Val
225                 230                 235                 240

tgt gta tcc gac aat ttc aat gtg aag aga ctg acc aaa gag ata atc          768
Cys Val Ser Asp Asn Phe Asn Val Lys Arg Leu Thr Lys Glu Ile Ile
                245                 250                 255

gag tct gct acc aag gtg gaa caa tct gac aaa ttg aac ttg gac acc          816
Glu Ser Ala Thr Lys Val Glu Gln Ser Asp Lys Leu Asn Leu Asp Thr
            260                 265                 270

ctg caa cag atc ctc aag gag aag att gct tca gag agg ttt ctg cta          864
Leu Gln Gln Ile Leu Lys Glu Lys Ile Ala Ser Glu Arg Phe Leu Leu
            275                 280                 285

gtc ctc gat gat gtg tgg agc gaa aac agg gat gac tgg gaa agg ctg          912
Val Leu Asp Asp Val Trp Ser Glu Asn Arg Asp Asp Trp Glu Arg Leu
        290                 295                 300

tgc gca cca cta agg ttt gca gca aga ggc agc aag gtt ata gtc aca          960
Cys Ala Pro Leu Arg Phe Ala Ala Arg Gly Ser Lys Val Ile Val Thr
305                 310                 315                 320
```

```
act cga gac aca aag att gcc agc atc att ggc aca atg aag gaa att      1008
Thr Arg Asp Thr Lys Ile Ala Ser Ile Ile Gly Thr Met Lys Glu Ile
            325                 330                 335

tcg ctc gat ggt ctc cag gat gat gct tac tgg gag ctg ttc aag aaa      1056
Ser Leu Asp Gly Leu Gln Asp Asp Ala Tyr Trp Glu Leu Phe Lys Lys
            340                 345                 350

tgt gca ttt ggt tct gtg aac ccc cag gag cat cta gag ctc gag gtt      1104
Cys Ala Phe Gly Ser Val Asn Pro Gln Glu His Leu Glu Leu Glu Val
        355                 360                 365

atc ggt aga aag att gct ggt aag ttg aag ggc tca ccg cta gca gca      1152
Ile Gly Arg Lys Ile Ala Gly Lys Leu Lys Gly Ser Pro Leu Ala Ala
    370                 375                 380

aaa aca cta gga agc ttg ttg cgg ttg gat gtc agc caa gaa cac tgg      1200
Lys Thr Leu Gly Ser Leu Leu Arg Leu Asp Val Ser Gln Glu His Trp
385                 390                 395                 400

aga act ata atg gaa agt gag gta tgg caa ctg cca caa gct gaa aat      1248
Arg Thr Ile Met Glu Ser Glu Val Trp Gln Leu Pro Gln Ala Glu Asn
                405                 410                 415

gaa ata ttg cct gtt cta tgg ctg agc tat caa cac ctt ccc gga cat      1296
Glu Ile Leu Pro Val Leu Trp Leu Ser Tyr Gln His Leu Pro Gly His
            420                 425                 430

ctt aga cag tgt ttc gct ttt tgc gct gtg ttt cac aaa gat tat tta      1344
Leu Arg Gln Cys Phe Ala Phe Cys Ala Val Phe His Lys Asp Tyr Leu
        435                 440                 445

ttc tat aaa cat gag ttg atc cag act tgg att gca gaa ggc ttc att      1392
Phe Tyr Lys His Glu Leu Ile Gln Thr Trp Ile Ala Glu Gly Phe Ile
    450                 455                 460

gca cat caa gga aac aag agg atg gaa gat gtc gga agc agc tac ttc      1440
Ala His Gln Gly Asn Lys Arg Met Glu Asp Val Gly Ser Ser Tyr Phe
465                 470                 475                 480

cat gag ctt gtt aat agg tct ttc ttt cag gaa tct cgg tgg aga ggg      1488
His Glu Leu Val Asn Arg Ser Phe Phe Gln Glu Ser Arg Trp Arg Gly
                485                 490                 495

cga tat gtg atg cat gac ctc ata cac gat ctt gcc caa ttt ata tca      1536
Arg Tyr Val Met His Asp Leu Ile His Asp Leu Ala Gln Phe Ile Ser
                500                 505                 510

gtg gga gag tgt cat agg ata gat gat gac aag tcc aaa gag acc cct      1584
Val Gly Glu Cys His Arg Ile Asp Asp Asp Lys Ser Lys Glu Thr Pro
            515                 520                 525

agt acg act cgt cat cta tca gta gca tta act gag caa atg aag ttg      1632
Ser Thr Thr Arg His Leu Ser Val Ala Leu Thr Glu Gln Met Lys Leu
        530                 535                 540

gtg gat ttt tca ggt tac aat aaa ttg cgg acc ctt atg atc aac aat      1680
```

```
Val Asp Phe Ser Gly Tyr Asn Lys Leu Arg Thr Leu Met Ile Asn Asn
545                 550             555                 560


cag aga aat cag tat cca tat atg act aaa gtc aac agc tgc ttg ttg      1728
Gln Arg Asn Gln Tyr Pro Tyr Met Thr Lys Val Asn Ser Cys Leu Leu
                565             570                 575


cct cat agc ttg ttc aaa aga ctg aaa aga atc cat gtt tta gtt ttg      1776
Pro His Ser Leu Phe Lys Arg Leu Lys Arg Ile His Val Leu Val Leu
                580             585                 590


cag aag tgt ggc atg aaa gag ttg cct gat att atc ggt gac ttg ata      1824
Gln Lys Cys Gly Met Lys Glu Leu Pro Asp Ile Ile Gly Asp Leu Ile
            595             600             605


caa ctt cgg tac ctt gac ata tcc tac aat gct tgc att cag agg ttg      1872
Gln Leu Arg Tyr Leu Asp Ile Ser Tyr Asn Ala Cys Ile Gln Arg Leu
        610             615             620


ccc gag tca ttg tgc gac ctt tac aat ctg caa gca ctg agg cta tgg      1920
Pro Glu Ser Leu Cys Asp Leu Tyr Asn Leu Gln Ala Leu Arg Leu Trp
625             630             635             640


ggc tgt caa tta cgg agt ttc cca caa ggc atg agc aag ctg atc aac      1968
Gly Cys Gln Leu Arg Ser Phe Pro Gln Gly Met Ser Lys Leu Ile Asn
                645             650                 655


ttg agg caa ctt cgt gta gaa gat gag ata att tcc aag ata tat gag      2016
Leu Arg Gln Leu Arg Val Glu Asp Glu Ile Ile Ser Lys Ile Tyr Glu
                660             665                 670


gtt ggg aag ctg att tct ctg caa gaa ttg tct gca ttc aaa gtg cta      2064
Val Gly Lys Leu Ile Ser Leu Gln Glu Leu Ser Ala Phe Lys Val Leu
            675             680             685


aat aat cat gga aac aaa ctt gca gaa cta agt ggt ttg aca caa ctc      2112
Asn Asn His Gly Asn Lys Leu Ala Glu Leu Ser Gly Leu Thr Gln Leu
        690             695             700


cgc agc act cta cga att aca aat ctt gaa aat gta ggg agt aaa gaa      2160
Arg Ser Thr Leu Arg Ile Thr Asn Leu Glu Asn Val Gly Ser Lys Glu
705             710             715                 720


gaa gca agc aag gct aaa ctg cac agg aaa cag tat ctt gaa gca tta      2208
Glu Ala Ser Lys Ala Lys Leu His Arg Lys Gln Tyr Leu Glu Ala Leu
                725             730                 735


gag tta gag tgg gca gct ggc cag gtt tcc agc ttg gag cat gag tta      2256
Glu Leu Glu Trp Ala Ala Gly Gln Val Ser Ser Leu Glu His Glu Leu
            740             745             750


ctt gtc tcg gag gaa gta ctt tta ggt ctc caa cca cat cac ttc ctc      2304
Leu Val Ser Glu Glu Val Leu Leu Gly Leu Gln Pro His His Phe Leu
            755             760             765


aaa agt ttg aca atc aga ggg tac agt ggt gca aca gta ccc agt tgg      2352
Lys Ser Leu Thr Ile Arg Gly Tyr Ser Gly Ala Thr Val Pro Ser Trp
```

```
ctg gat gtg aaa atg cta ccg aac ttg gga act ctt aaa cta gag aac    2400
Leu Asp Val Lys Met Leu Pro Asn Leu Gly Thr Leu Lys Leu Glu Asn
785                     790                 795                 800

tgt aca aga ctg gag ggt ctt tca tat att gga caa ctg cca cat ctc    2448
Cys Thr Arg Leu Glu Gly Leu Ser Tyr Ile Gly Gln Leu Pro His Leu
                    805                 810                 815

aag gtc ctt cat atg aag aga atg cct gtg gtg aaa caa atg agt cat    2496
Lys Val Leu His Met Lys Arg Met Pro Val Val Lys Gln Met Ser His
                820                 825                 830

gaa tta tgt ggc tgt acg aaa agc aag ttg ttc cct agg cta gaa gag    2544
Glu Leu Cys Gly Cys Thr Lys Ser Lys Leu Phe Pro Arg Leu Glu Glu
            835                 840                 845

tta gta ctg gag gat atg cca aca ttg aaa gaa ttc ccg aat ctt gca    2592
Leu Val Leu Glu Asp Met Pro Thr Leu Lys Glu Phe Pro Asn Leu Ala
            850                 855                 860

caa ctt cct tgt ctc aag att att cac atg aag aac atg ttt gca gta    2640
Gln Leu Pro Cys Leu Lys Ile Ile His Met Lys Asn Met Phe Ala Val
865                 870                 875                 880

aaa cat ata ggt cgt gaa tta tat ggt gat ata gag agc aat tgt ttt    2688
Lys His Ile Gly Arg Glu Leu Tyr Gly Asp Ile Glu Ser Asn Cys Phe
                    885                 890                 895

cta tca tta gaa gag ctt gtg ctg cag gac atg ctg aca ttg gag gaa    2736
Leu Ser Leu Glu Glu Leu Val Leu Gln Asp Met Leu Thr Leu Glu Glu
                    900                 905                 910

ctc cca aat ctt gga caa ctt cca cat ctt aag gtt att cac atg aag    2784
Leu Pro Asn Leu Gly Gln Leu Pro His Leu Lys Val Ile His Met Lys
            915                 920                 925

aac atg tct gca ctg aaa ctt ata ggt cgt gaa tta tgt gat tct aga    2832
Asn Met Ser Ala Leu Lys Leu Ile Gly Arg Glu Leu Cys Asp Ser Arg
        930                 935                 940

gag aaa att tgg ttt cct agg cta gaa gtg cta gtg ctg aag aac atg    2880
Glu Lys Ile Trp Phe Pro Arg Leu Glu Val Leu Val Leu Lys Asn Met
945                 950                 955                 960

ctg gca ctg gag gaa ctc cca agc ttg gac aac ttc cgt gtc tca aga    2928
Leu Ala Leu Glu Glu Leu Pro Ser Leu Asp Asn Phe Arg Val Ser Arg
                    965                 970                 975

ttc ttc gca tcc agt gtc gaa gta ggc cat gga ctc ttt agt gct acg    2976
Phe Phe Ala Ser Ser Val Glu Val Gly His Gly Leu Phe Ser Ala Thr
                    980                 985                 990

agg aat aaa tgg ttt cca agg ctg  gaa gag cta gaa atc  aag ggc atg    3024
Arg Asn Lys Trp Phe Pro Arg Leu  Glu Glu Leu Glu Ile  Lys Gly Met
        995                 1000                1005
```

```
ctg aca ttt gag gaa ctc cat   tct ctt gaa aaa ctg   cca tgt ctc          3069
Leu Thr Phe Glu Glu Leu His   Ser Leu Glu Lys Leu   Pro Cys Leu
    1010             1015               1020


aag gtt ttc cgc atc aag gga   ttg cca gca gtg aaa   aag ata ggc          3114
Lys Val Phe Arg Ile Lys Gly   Leu Pro Ala Val Lys   Lys Ile Gly
    1025             1030               1035


cat gga tta ttt gat tct acc   tgt cag aga gag tgt   ttt cca agg          3159
His Gly Leu Phe Asp Ser Thr   Cys Gln Arg Glu Cys   Phe Pro Arg
    1040             1045               1050


ttg gaa gat ctc gta tta agc   gac atg cca gca tgg   gaa gag tgg          3204
Leu Glu Asp Leu Val Leu Ser   Asp Met Pro Ala Trp   Glu Glu Trp
    1055             1060               1065


tcg tgg gct gaa agg gag gag   tta ttt tcc tgc ttg   tgt aga ctt          3249
Ser Trp Ala Glu Arg Glu Glu   Leu Phe Ser Cys Leu   Cys Arg Leu
    1070             1075               1080


aaa att gaa caa tgc ccc aaa   ctt aaa tgc ttg ctt   ccc atc cct          3294
Lys Ile Glu Gln Cys Pro Lys   Leu Lys Cys Leu Leu   Pro Ile Pro
    1085             1090               1095


cat tct ctc ata aaa ctt gaa   tta tgg caa gtt ggg   ctg aca gga          3339
His Ser Leu Ile Lys Leu Glu   Leu Trp Gln Val Gly   Leu Thr Gly
    1100             1105               1110


ctt cca gga tta tgc aaa gga   att ggt gga ggt agc   agc act aga          3384
Leu Pro Gly Leu Cys Lys Gly   Ile Gly Gly Gly Ser   Ser Thr Arg
    1115             1120               1125


act gct tct ctc tca ctc ttg   cac att att aaa tgt   cca aat ctg          3429
Thr Ala Ser Leu Ser Leu Leu   His Ile Ile Lys Cys   Pro Asn Leu
    1130             1135               1140


aga aat ctg gga gaa ggg ttg   cta tca aac cac ctg   cca cat atc          3474
Arg Asn Leu Gly Glu Gly Leu   Leu Ser Asn His Leu   Pro His Ile
    1145             1150               1155


aat gct att cgg ata tgg gaa   tgt gct gaa ctg ttg   tgg ctg cct          3519
Asn Ala Ile Arg Ile Trp Glu   Cys Ala Glu Leu Leu   Trp Leu Pro
    1160             1165               1170


gtc aag agg ttt aga gaa ttc   acc acc ctt gag aac   ttg tca ata          3564
Val Lys Arg Phe Arg Glu Phe   Thr Thr Leu Glu Asn   Leu Ser Ile
    1175             1180               1185


agg aac tgc ccc aag ctc atg   agc atg aca cag tgt   gag gag aat          3609
Arg Asn Cys Pro Lys Leu Met   Ser Met Thr Gln Cys   Glu Glu Asn
    1190             1195               1200


gac ctc ctc ctc ccg ccg tta   atc aag gca cta gaa   ttg ggt gac          3654
Asp Leu Leu Leu Pro Pro Leu   Ile Lys Ala Leu Glu   Leu Gly Asp
    1205             1210               1215
```

tgt gga aat ctt ggg aaa tcg ctg cct gga tgc c